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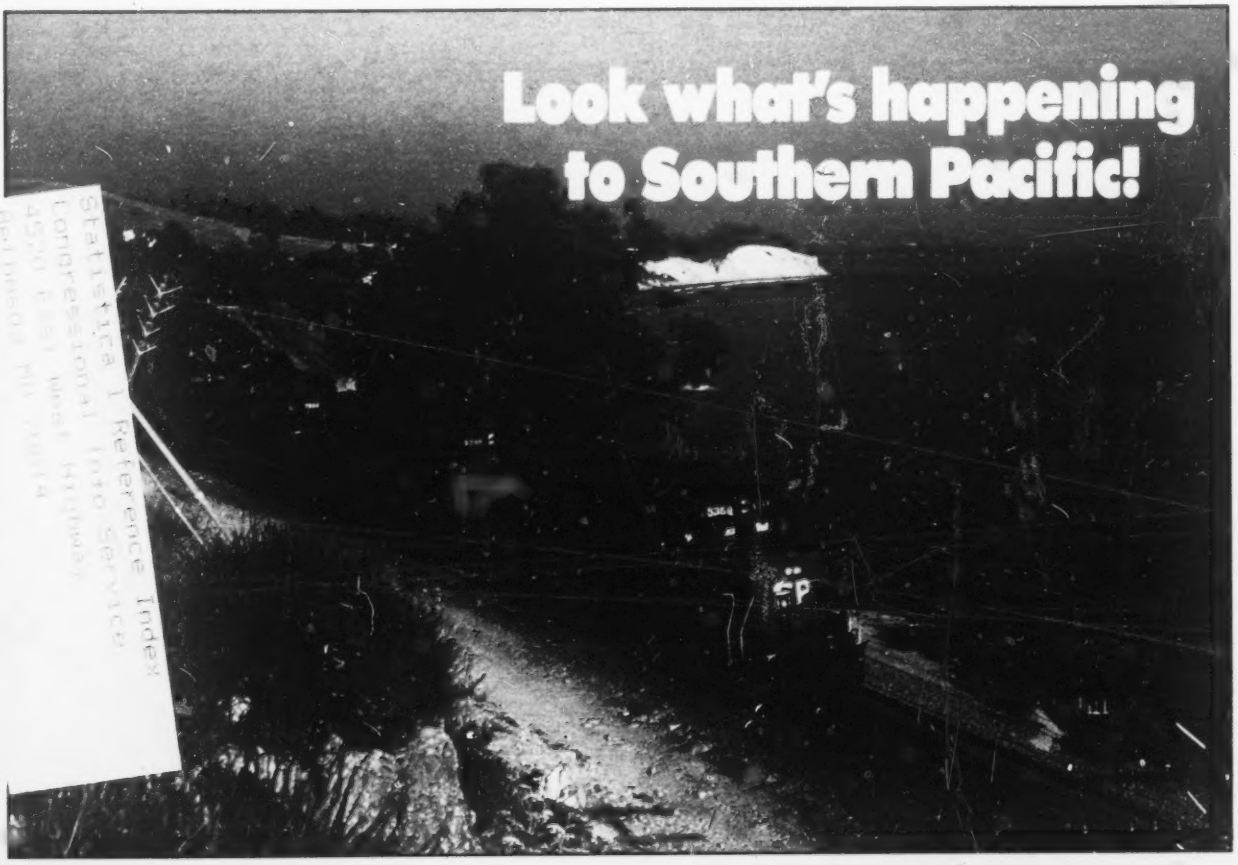

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Is "turnkey" the key to lower transit costs?

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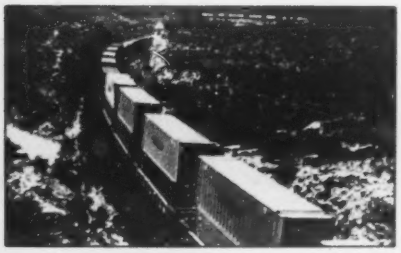

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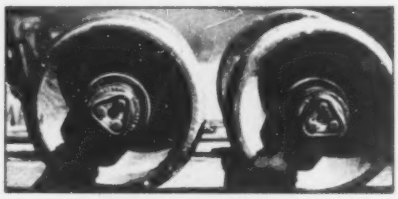

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Southern Pacific cover photo by Edward Delvers

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INSIDE

Where $1 will get you $13

LUTHER S. MILLER

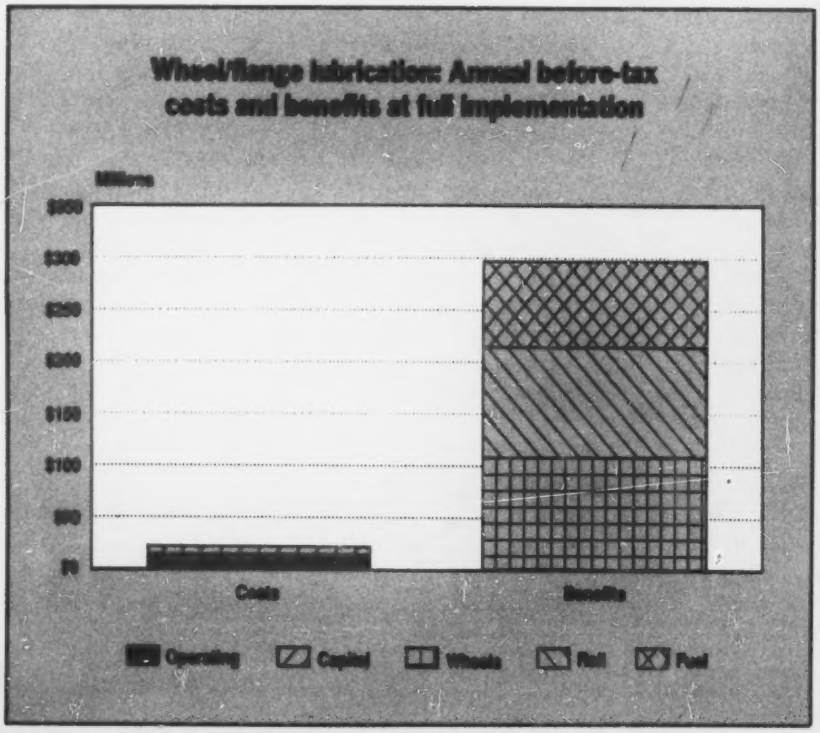
The cost-benefit analysis reproduced below is Exhibit 3 in the just-published AAR Research & Test Report R-729, and it goes a long way toward explaining why R-729 has in recent weeks become the talk of the industry.

What the chart says is that Class I railroads, once they are coating all of their principal tangent and curve rail with varying thicknesses of grease, will realize benefits of nearly $300 million a year for a total outlay of around $22 million a year.

Or to put it another way, as AAR chief engineering economist T.A. Gudiness does in R-729, "Economics of Wheel-Flange-to-Rail Lubrication of Tangent and Curve Track":

"Every dollar usefully spent on wheel-rail lubrication of tangent and curve track yields $13 in before tax benefits, $10 of which contribute to profits in the long run, and $3 of which (the fuel benefits) do so immediately. With that kind of operational leverage available, each railroad may wish to consider proceeding with large-scale implementation as soon as it has found a suitable lubricator."

There are, in fact, half a dozen or so lubricator options on the market, as well as a variety of lubricants designed to do the job but not overdo it. And some of the suppliers are doing a brisk business. By the end of this year railroads will have equipped around 5,700 road locomotives with lubricators (1,900 this year alone); at full implementation about 8,500 locomotives will have onboard lubricators. For the latest chapter in the story behind all of this, see p. 49.



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Equipment

Burlington Northern: Will acquire 100 3,800-hp SD60 locomotives from the Electro-Motive Division of General Motors in an innovative deal which calls for the units to be maintained by BN shop employees working under EMD supervision.

Union Pacific: Will lease 550 4,300-cubic-foot-capacity aluminum rotary dump gondolas for movement of low-sulphur coal from the Powder River Basin of Wyoming. RESIDCO originated and structured the lease and arranged the lease financing for this $28 million, five-unit-coal-train package. The cars are being built by Bethlehem Steel.

Washington Metropolitan Area Transit Authority: AEG Westinghouse Transportation Systems will supply propulsion and automatic train control equipment for cars which Breda is building for WMATA. The contract calls for an initial 68 carsets of equipment to be delivered by June 1991 and includes a variable buy of 32 carsets with an option for an additional 40 carsets.

Facilities

Grand Trunk Western: Will expand and modernize its MoTerm intermodal facility at Detroit at a cost of $7.2 million. Phase 1, including removal of GTW's Ferndale yard, relocation of main line tracks, and expansion of the terminal's truck-parking area, will be completed in October. Phase 2, scheduled for completion a year later, will include construction of new gate facilities and fencing and lighting, and installation of new computer and telephone systems. The terminal will more than triple the daily throughput capacity of the existing facility.

Metra: Will spend $90 million over a four-year period to rehabilitate the trainshed of the Chicago & North Western passenger terminal near the Chicago Loop. Metra has also earmarked $250 million for a bridge replacement/rehabilitation program, a five-year project involving 90 structures.

Santa Fe: Will enlarge three tunnels near Martinez, Calif., to accommodate movement of domestic and international double-stack trains over its main line in northern California. Morrison-Knudsen is performing the work, at a cost of about $5 million, with completion scheduled for late-1989. M-K will raise (notch) the ceilings in two tunnels and lower the floor in the third. At the same time, Santa Fe will renew the track inside the tunnels, installing 16,600 feet of new 132-pound cwr, 5,200 crossties and more than 2,900 cubic feet of rock ballast, and rebuilding the drainage systems.

● Awarded a contract to Union Switch & Signal for a Dual Digital Control (DDC) system which will replace existing control equipment at Santa Fe's Argentine, Kans., yard. US&S describes the DDC system as a fully automated, real-time control package that increases reliability and reduces maintenance costs by integrating the class yard control equipment and subsystems, including retarders, switches, weigh rails, wheel detectors, Doppler radar units, and weather stations. The system monitors data from each component and compensates for stalled cars and for changes in car reliability, wind speed or direction, temperature, and switch or retarder operation.

Revenue freight carloadings

Commodity	Aug. 19 week	Aug. 12 week	Aug. 5 week	July 29 week	July 22 week
Grain	25,547	26,475	24,853	26,626	24,937
Other farm products	900	915	894	950	1,121
Metallic ores	20,827	21,063	21,660	20,471	23,604
Coal	132,554	130,234	120,282	121,802	111,930
Crushed stone, gravel and sand	16,962	17,435	17,757	16,894	17,302
Nonmetallic minerals	11,145	11,177	10,155	10,484	10,205
Grain mill products	9,692	9,533	10,000	9,487	9,796
Food and kindred products	8,918	9,019	9,050	9,144	8,757
Primary forest products	9,388	9,488	8,957	9,264	9,364
Lumber and wood products	6,607	6,271	6,691	7,078	6,803
Pulp, paper and allied products	9,961	10,184	10,615	10,620	10,544
Chemicals and allied products	27,150	26,927	27,278	26,305	27,242
Petroleum products	4,937	5,523	4,966	5,300	5,130
Stone, clay and glass products	11,074	11,172	10,737	10,935	10,506
Coke	5,152	5,486	5,986	5,760	5,507
Metals and products	8,968	8,947	9,429	9,654	9,501
Motor vehicles and equipment	17,571	16,241	13,950	13,914	12,858
Waste and scrap materials	8,308	8,086	7,686	8,285	8,390
All other carloads	6,921	6,465	6,475	7,081	7,228
Total Cars Loaded	342,582	348,647	327,439	330,864	326,725
% change from previous year	(2.8)	(.1)	(3.0)	(4.3)	(4.4)

		% change
Cumulative total: 33 weeks	10,938,400	(.9)

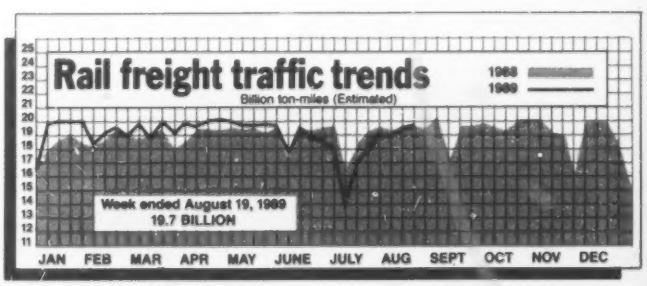
Estimated revenue ton-miles (billions)	19.7	19.5	18.9	19.0	18.2
% change from previous year	(2.0)	.0	(2.1)	(3.1)	(4.7)

Total:	1989	1988	% change
33 weeks	627.1	629.5	(.4)

Intermodal traffic

	Aug. 19	Aug. 12	Aug. 5	July 29	July 22
Trailers	64,570	64,262	65,265	66,594	64,577
Containers	51,511	49,437	49,479	51,022	48,239
Total	116,081	113,699	114,744	117,616	112,816
% change from previous year	.9	.9	1.1	3.7	(.3)

		% change
Cumulative total: 33 weeks	3,703,546	3.3


Rail freight traffic trends
Billion ton-miles (Estimated)
1988
1989
Week ended August 19, 1989
19.7 BILLION
JAN FEB MAR APR MAY JUNE JULY AUG SEPT OCT NOV DEC

Source: Association of American Railroads

WATCHING WASHINGTON

Mr. Bush, meet the railroads

In its quest for new energy and clean-air policies, the Bush Administration is finally starting to get its act together. But so far the railroads are missing from the cast, despite numerous studies that have underscored their effectiveness in conserving energy and protecting the environment.

Energy conservation is high on the Administration's priority list, and well it should be: Imports now account for nearly half of our oil supply, more than at the time of the Arab oil embargo in 1973; and the experts are saying that the price is rising.

Interior Secretary Manuel Lujan, Jr., doubtless had this on his mind when he traveled to Long Beach, Calif., a few weeks ago to tell the Western Governors Association about the Administration's search for "a sensible, long-term energy strategy."

Secretary Lujan said it's "important that we develop alternate sources for powering our automobiles—natural gas, methanol, ethanol and electricity." But nowhere did he mention the demonstrated effectiveness of passenger rail—intercity, commuter, rapid transit, light rail—in reducing dependence on the automobile.

(Perhaps he was embarrassed to bring the matter up: It is this Administration, after all, that has proposed cutting federal aid to mass transit in half, and drastically reducing aid to Amtrak.)

Secretary Lujan also mentioned that "fully two-thirds of all of our oil use goes to fuel our transportation system"—but nowhere did he mention the relative efficiency with which the various modes use that oil.

The following breakdown comes not from the Department of the Interior but from Jack Brannan, the Pittsburgh-based transportation consultant (and former chief mechanical officer of the Long Island Rail Road), who has campaigned long and tirelessly against the sacrifice of our energy resources at the shrine of the internal combustion engine.

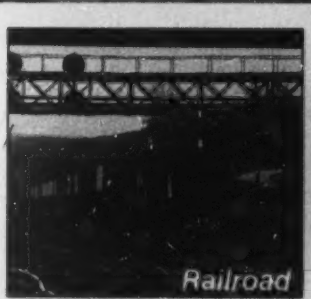
U.S. Oil Consumption	
Private automobile	43%
Airline industry	8%
Interstate motor truck	8%
Interstate railroads	2%
Inland waterways	1%
Pipe lines	1%
Other transport	3%
Subtotal transportation	**66%**

(To which Mr. Brannan adds the parenthetical note that railroads use one-fourth of the diesel fuel to haul the same tonnage as trucks.)

Meanwhile, back at the White House, President Bush unveiled a clean-air plan which, to the disappointment of the National Association of Railroad Passengers, "failed to call for reduced auto use and increased reliance on mass transit and transit-supportive land-use planning."

"The Bush transportation proposals," grumbled NARP, "rely almost exclusively on improved emissions performance by individual cars."

Over at the Department of Transportation, another search is under way—for a national transportation policy. Rail advocates, freight and passenger, are having their say at a number of hearings DOT is holding on this subject. They're hoping their message will trickle over to Interior and, if such a thing is possible, up to the White House.—**L.S.M.**



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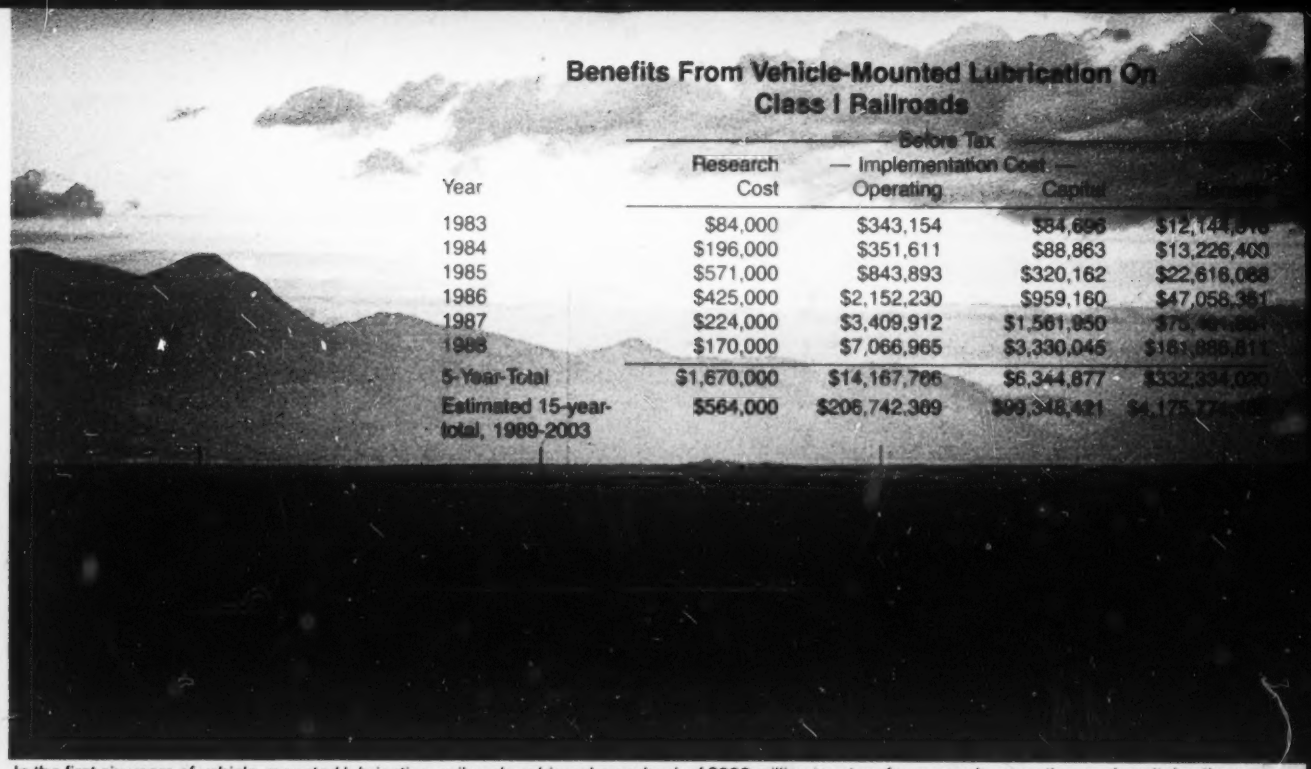

Benefits From Vehicle-Mounted Lubrication On Class I Railroads

Year	Research Cost	Implementation Cost — Operating	Implementation Cost — Capital	Benefits
		Before Tax		
1983	$84,000	$343,154	$84,696	$12,144,[illegible]
1984	$196,000	$351,611	$88,863	$13,226,400
1985	$571,000	$843,893	$320,162	$22,616,068
1986	$425,000	$2,152,230	$959,160	$47,058,351
1987	$224,000	$3,409,912	$1,561,950	$75,[illegible]
1988	$170,000	$7,066,965	$3,330,045	$161,[illegible]
5-Year-Total	$1,670,000	$14,167,766	$6,344,877	$332,334,020
Estimated 15-year-total, 1989-2003	$564,000	$206,742,389	$99,348,421	$4,175,[illegible]

In the first six years of vehicle-mounted lubrication, railroads achieved a payback of $332 million in return for research, operating, and capital outlays totaling $22 million, an AAR study indicates. Over the 15-year period 1989-2003, benefits exceeding $4 billion for outlays of slightly over $300 million are projected. Photo shows Conrail lubrication test train on Wheel/Rail Mechanism (WRM) Loop at Pueblo.

Rail greasing:

Big new savings identified

Significantly reduced wheel and curve rail wear, as well as lower fuel consumption, could result in a payback of $13 for every $1 invested in onboard lubrication, says an AAR study.

By LUTHER S. MILLER, Editor

Because of an "accidental and astounding" discovery made at a test track in Pueblo, Col., six years ago, the railroads over the next 15 years stand to reap benefits of $4 billion for an outlay of $300 million—a return-on-investment of a magnitude not seen since the mid-century switchover from steam power to diesels.

That is the eye-popping bottom line of AAR Research and Test Report R-729, "Economics of Wheel-Flange-to-Rail Lubrication of Tangent and Curve Track." It's a 66-page document full of surprises even for those who have been close to the fast-unfolding wheel/rail lubrication story.

The "accidental and astounding" discovery made at Pueblo in 1983 is by now a thrice-told tale. Wrapping up a five-year series of Rail Metallurgy Experiments (RME) at the AAR's Transportation Test Center, researchers stumbled upon the finding that trains traveling on lightly-greased rails consumed substantially less fuel than trains traveling on dry rails.

Up to that time rail lubrication was essentially confined to curves, and many of the mechanical wayside lubricators that were assigned to the task had been allowed to fall into disrepair. Now, the astounding news from Pueblo was that grease could not only reduce rail wear on curves but could also save energy on tangent track.

Field tests confirmed these findings, and response was swift on both the demand and supply sides.

Old and new lubrication-system manufacturers went to their drawing boards, and very soon brand names like TSM, Kipp KLS, Lubriquip, Willy Vogel, Bijur, and Fuji began to appear in product literature that offered an array of onboard greasing devices ranging from the simple to the sophisticated, including systems equipped with electronic sensors to increase the flow of lubricant on curves. (There was also renewed interest in wayside curve lubricators, and both Moore & Steele and Portec began to market sophisticated new equipment, using such terms as "hydraulic" and "solar-powered" to describe state-of-the-art devices far removed from the old mechanical lubricators.)

By the end of 1988, Class I railroads had equipped 3,800 road freight locomotives with wheel/flange lubricators; they will equip another 1,900 units this year, and the total is expected to reach 8,500 at full implementation in the 1990s. A few railroads are using hi-rail-mounted lubricators; 27 of these were in service at the end of 1988.

The main impetus has so far been fuel savings. Now—and this is the big surprise in R-729—the evidence strongly suggests that onboard lubrication will produce even bigger savings in freight-car and locomotive wheel replacements and in curve rail wear.

"At full implementation," projects R-729, "wheel/rail lubrication of tangent and curve track will produce annual savings

of $83 million in fuel, $108 million in freight car and locomotive wheels, and $104 million in curve rail—a total of $295 million a year."

The implications of this are very clear, in the view of the author of the R-729 report, AAR chief engineering economist T.A. Gudiness:

"Every dollar usefully spent on wheel/rail lubrication of tangent and curve track yields $13 in before tax benefits, $10 of which contribute to profits in the long run, and $3 of which (the fuel benefits) do so immediately. With that kind of operational leverage available, each railroad may wish to consider proceeding with large-scale implementation as soon as it has found a suitable lubricator."

To date, according to the AAR study, which was published last month, about $1.7 million has been spent on research, $14.2 million on operating costs, and $6.3 million on capital costs. Between 1989 and 2003 research costs will drop to around $560,000, with operating costs totaling $206.7 million and capital costs, $99.3 million.

All of this has, of course, stirred up new interest in lubricants. As the search for an "optimum" lubricant goes on, a variety of products are on the market. Railroads spent $2.9 million on lubricant in 1988; this will rise to an estimated $5.9 million a year at full implementation.

These are the components of one of the two best-selling flange lubricating systems, the Kipp KLS (recently acquired by the company that also owns Lubriquip). The other leading supplier of onboard systems is TSM.

• Caveats and cautions. The R-729 document, which is studded with tables and graphs charting the actual and probable results of wheel/rail lubrication, comes with its share of caveats. Some of the input, the author points out, came from judgmental statements by railroad people interviewed for the study; it was impossible to check out all of the sources and assumptions which lay behind much of the data; and some data came from proprietary tests and could not be independently checked.

Gudiness also takes note of "the difficulty of separating out the physical and economic effects of parallel technological advances." For example: "How much savings in wheel and rail could be ascribed to tangent track lubrication versus parallel developments such as better attention to wayside lubrication, introduction of profile rail grinding, development of better wheel/rail lubricants, adoption of better metallurgy and improvements in train handling techniques?

"We did the best we could," says Gudiness, "to separate tangent track lubrication savings from other savings, but undoubtedly some economic benefits from parallel innovations were inevitably mixed up with the savings ascribed to the topic at hand."

Keeping these caveats in mind, here are some of the highlights of R-729:

Fuel savings: At full implementation, vehicle-mounted lubrication will save Class I railroads about 140 million gallons of diesel fuel per year. Railroads using locomotive-mounted lubricators may expect to

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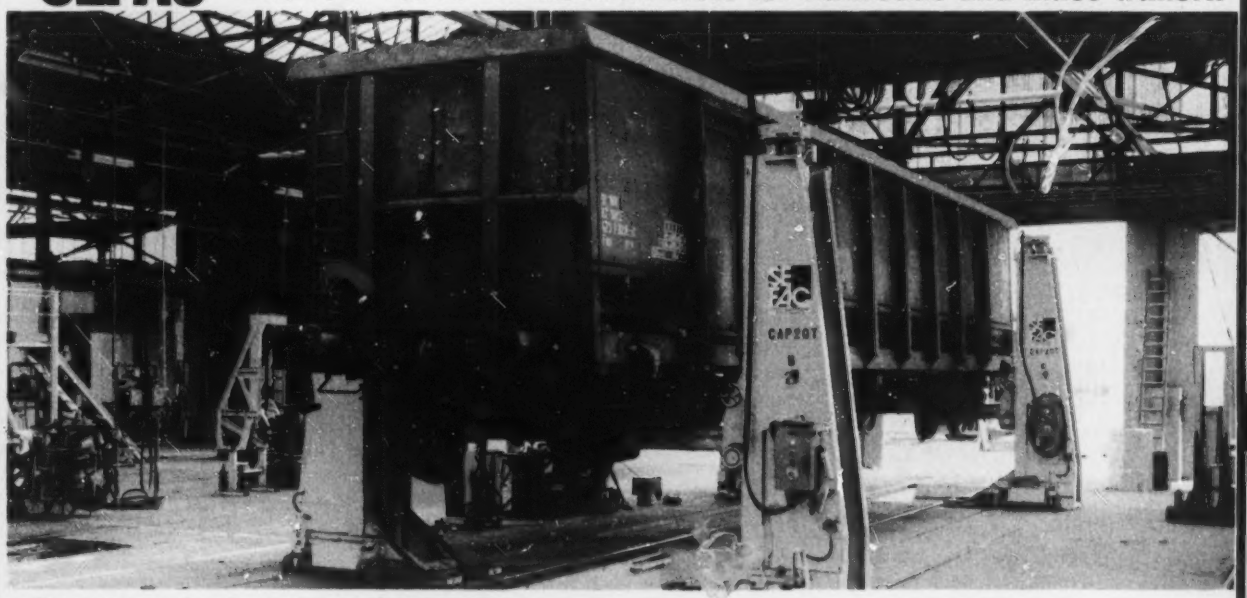

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reduce fuel costs by about 5.5% beyond what they achieved with mechanical wayside lubricators. Railroads using hi-rail-mounted lubrication may achieve only a 3% saving. This is because "locomotive-mounted lubrication is easier to control because the lubricant is deposited on the rails by nearly every train that passes. Each train would see about 5.5% in fuel savings because nearly every train provides its own wheel/rail lubrication. But, hi-rail-mounted lubrication tests at FAST have shown that only the first few trains that followed the hi-rail lubricator truck might see a 5.5% fuel savings. Subsequent trains would see less of a fuel savings as the lubricant wore off."

Wheel savings: Available evidence suggests that at full implementation railroads using locomotive-mounted lubricators will save about 30% on freight car wheel replacements and about 50% on locomotive wheel truings and replacements. "Class I railroads could expect to save $56 million on car and locomotive wheels in 1988, because of vehicle-mounted lubrication, $100 million in 1993 and $108 million in 2003."

Freight car wheel savings are expected to reach $46 million in 1988, $82 million in 1993, and $88 million in 2003. These savings are calculated using a typical cost of about $1,000 to replace a freight car wheelset.

The AAR study arrived at the car-wheel savings estimate this way: "We used 350,000 miles as the life of freight car wheels, before the introduction of vehicle-mounted lubrication. This figure was supplied by one of the major railroads. The same railroad, which now uses locomotive-mounted lubricators in large numbers, claimed that preliminary results from a study they were doing indicated that they were using at least 30% fewer freight car wheelsets in territory where locomotive-mounted lubricators had been fully implemented, compared to the period immediately preceding implementation. This was after adjustment had been made for differences in gross ton-miles for the years used in the comparison." The AAR study estimates that vehicle-mounted lubrication adds 75,000 miles to the life of a car wheel.

Savings on locomotive wheels are estimated at $10 million in 1988, $18 million in 1993, and $20 million in 2003, due to a reduction in both wheel replacements and wheel truings. This is based on an estimated cost of $2,200 for replacing a locomotive wheelset ($2,040 for shop costs and $160 as the cost of tying up a locomotive while a wheel set is replaced). Wheel truing savings should amount to $1.1 million in 1988, $2.1 million in 1993, and $2.2 million in 2003, based on a cost of $111 per wheel for truing ($83 for shop cost, $28 for tying up a locomotive unit).

Curve rail savings: "To date, there appears to be no convincing evidence that wheel-mounted lubrication is producing increased tangent rail life," says R-729. "Indeed, both before and after the introduction of rail lubrication, tangent rail almost always failed because of fatigue or vertical head wear, rather than gauge-face wear.

"[But] railroads could expect to achieve curve rail savings of $57 million in 1988, $97 million in 1993, and $104 million in 2003. Curve rail savings were similar in magnitude to those for wheels and significantly larger than expected fuel savings."

According to the AAR study, "Class I railroads spent about $184 million per year to replace curve rail prior to the implementation of vehicle-mounted lubrication, and they could expect to spend about $77 million a year after full implementa-

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tion....Class I railroads were using around 940 track-miles of curve rail a year prior to the introduction of vehicle-mounted lubrication...and expect to use around 400 track miles per year after full implementation." This assumes that use of locomotive-mounted lubricators will improve the life of premium curve rail by about 150%.

Wayside lubricator savings: To what extent can vehicle-mounted lubricators replace wayside lubricators? Opinion is divided. This is what R-729 has to say:

"One railroad, with a lot of curvy track on part of its line, permanently discontinued maintenance of its wayside lubricators as part of an economy drive, more than a decade ago. When heavy-axle-load unit train traffic grew at a rapid pace in the 1980s, this carrier began to notice that wheels and rail were disappearing at an alarming rate. However, rather than return to wayside lubrication, it adopted locomotive-mounted lubrication, supplemented by hi-rail-mounted curve rail lubrication. This lubrication strategy has been fully operational for several years now, and the carrier is very pleased with the results.

"Another railroad, which is well along in the process of implementing locomotive-mounted lubrication, has not eliminated any of its mechanical wayside lubricators, but it has relocated some of them from medium-density, average-axle-load lines and concentrated them on high-density, heavy-axle-load lines. This strategy, combined with profile rail grinding, has doubled curve rail life on both medium- and high-density lines.

"Three other railroads have actually eliminated 335 mechanical wayside lubricators through 1988, as a direct consequence of implementing vehicle-mounted lubrication. They plan to eliminate 165 additional mechanical wayside lubricators in 1989 and 1990."

Research costs: The AAR research effort on rail lubrication cost the industry $1.7 million before taxes from 1983 to 1988, ($1 million after taxes)—a cost that "was recouped a hundred times over in the single year 1988," says R-729 author Gudiness.

The latest five-year plan calls for AAR research expenditures or projects related to wheel/rail lubrication to drop to $560,000 before taxes ($320,000 after taxes). Future projects will evaluate the effectiveness of different lubricants (1990 to 1993), develop laboratory tests for the evaluation of lubricants (1989 to 1991), field test the improved tribometer for measuring wheel wear (1989 to 1991), determine the optimal rates for applying different kinds of lubricant under various conditions (1989 to 1992), and determine the effects of sanding on wheel/rail lubricant (1990).

Lubricant: Railroads used about 500,000 gallons of lubricant in locomotive-mounted systems in 1988; this is expected to rise to 1.1 million gallons by 1993 and 1.2 million gallons in 2003. Average cost is about $4.70 per gallon.

For antitrust reasons, the AAR report was unable to discuss lubricants by brand name, but a few surveyed roads were able to supply generic descriptions. Two were using a graphite-based lubricant, one was using 30% graphite, and one used a graphite-molybydenum suspension.

(AAR Research and Test Department Report R-729 is available from the Document Distribution Center, Chicago Technical Center, 3140 South Federal St., Chicago, Ill. 60616. The cost to AAR non-members is $100.)

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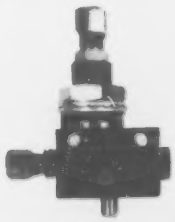

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search into the potential of onboard lubrication. In recent months, Conrail conducted two such tests at Pueblo. Douglas B. Tharp of Conrail's Technical Services Laboratory discussed the results of these tests with *Railway Age:*

"The purpose of the first test was to determine (1) if there was a significant improvement by using a lubricant with additives and some solids, in addition to tackifiers, and also to see if curve sensing was all it was cracked up to be. This was a joint Conrail-AAR test. We took our own locomotive and test car out to Pueblo with our onboard lubrication system with curve-sensing equipment, a modified Willy Vogel system. We tested nine different lubricants, including the one we're currently using. In almost all cases the other lubricants performed better than the lubricant we have been using, a calcium base without any additives or tackifier. We saw some significant improvements both with the premium lubricants and with curve sensing. As a result, we are going to discontinue the use of our calcium base and we're planning to go to a lithium base with a molybdenum disulfide solid and with a tackifier. We are also asking General Electric to install curve sensing equipment on 100 new locomotives we are buying in 1990."

New on the wayside lubricator market is Portec Railway Maintenance Products Division's Solar Protector, a battery-operated, solar-powered DC electronic lubricator intended for use at locations where AC power is not practical.

Conrail's other test, conducted in June, was designed to determine to what degree, if any, onboard lubricators could replace wayside lubricators. The results were inconclusive. "However," said Tharp, "after some further, real-world tests, I'm hopeful that we will be able to replace some wayside lubricators. The potential seems to be there on curves up to six degrees, which is what we tested at Pueblo."

As for the AAR report, Tharp observed, "If it's even close to being correct, what it says about wheel and rail wear in addition to energy savings is of the greatest importance.

"Even though we've been looking into it for five or six years," Tharp added, "this whole business of lubrication is still in its infancy and we will continue our research." To assist in that research, Conrail is buying, for around $10,000 apiece, two of the tribometers mentioned in the AAR report. These are devices which measure friction. Developed by British Rail, the tribometer technology was acquired by the AAR.

• The Santa Fe experience. Another railroad that has studied replacing wayside with onboard units is the Santa Fe. "We had hoped that we would be able to do away with the trackside lubricating systems when we first started the onboard program," said Santa Fe's chief mechanical officer, Doug Sizemore, "but I'm not sure that everyone shares that view at this time. There's a different weight of lubricant used in the wayside systems as opposed to what we carry on board the locomotive. We use different types of greases. I believe that some of the lubrication systems may not be capable of

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Railgreasing

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delivering the greases with the higher viscosity. If you plan to replace a wayside lubricator, you have to be careful when you purchase an onboard system that it's capable of delivering the right lubricant."

If Sizemore has any advice for newcomers to onboard lubrication, it's this: "Buying the flange lubricator and putting it on is just the beginning of the program.

"The real problem," he added, "is making sure that the flange lubricator reservoirs are full and that the system is on and working. Like any other good program, it's going to take a lot of follow-up and a lot of control to make that happen."

Reliability is, in fact, an industry-wide problem, and it's one that railroads tend to blame not on the equipment but on their own maintenance practices.

W. E. Mims, general manager of environmental and engineering operations for CSX Transportation, said a spot survey of lubricators on his railroad a few months ago showed that "something in the neighborhood of about 40% had some small or major problem—they were not operative or were not operating as well as they should have been.

"Since then," said Mims, "we've put out videotapes that have stressed the importance of maintaining these things. One of the chief complaints I hear is that they're out of grease. Another problem is nozzles out of alignment. That's something we can correct very easily, and we are doing so."

● **How many lubricators?** Opinion varies as to what percentage of a locomotive fleet needs to be equipped with lubricators to get the maximum benefits, though 50% is a commonly cited number. Santa Fe, for example, plans to equip around half of its fleet of 1,550 locomotives.

This is Santa Fe's thinking on the subject, as summed up by Doug Sizemore:

"On the Santa Fe we have the eight-event locomotive recorder system on even numbered locomotives, so for maintenance and follow-up purposes we decided to put the flange lubricators on the even-numbered units. From past experience we knew that this gave us a probability in the 90% range that any consist running on our railroad would have at least one unit with a flange lubricator on that consist. But we have now modified that somewhat. We have some four-axle high-horsepower locomotives in transcontinental expedited piggyback service that are averaging 20,000 miles per locomotive per month. We have some other locomotives that are in heavy drag service averaging just about 12,000 miles a month. So we asked ourselves, why not put flange lubricators on those racehorses between Chicago and the Coast where we're using up all of that horsepower? Now, we are equipping all of the high-horsepower four-axle units because that's where we get the most benefit.

"What this really says is that you need to custom-fit the lubrication system to your particular circumstances. We're putting our lubricators where we're seeing the greatest amount of wear and using the most fuel."

Sizemore agrees with the AAR researchers that onboard lubrication is producing benefits undreamed of just a few years ago. One that particularly interests him: "We found that lubrication reduces the propensity to oscillate and truck-hunt, and we believe this will reduce derailments due to hunting."

The benefits to be derived from squirting a little grease on the rails may not be endless, but it sometimes seems that way. ■

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